

This listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (currently amended) A method of making at least one resistor, the method comprising:

providing a sacrificial layer having a first surface and one or more pads including at least one electrically conductive material disposed over at least one region of said first surface;

depositing an electrically resistive material including electrically conductive particles in a binder over said pads and over said first surface of said sacrificial layer to thereby form at least one unit including said electrically resistive material and said one or more pads; and

removing at least a portion of said sacrificial layer to expose said one or more pads.

2. (original) The method as claimed in claim 1, wherein a plurality of resistors is manufactured simultaneously using a single sacrificial layer, the method further comprising separating at least some of said resistors from one another after at least a portion of the sacrificial layer has been removed.

3. (original) The method as claimed in claim 2, wherein said step of separating at least some of said resistors includes subdividing at least one of said units.

4. (original) The method as claimed in claim 1, wherein said step of providing said sacrificial layer and said pads includes depositing said at least one conductive material onto said first surface of said sacrificial layer.

5. (original) The method as claimed in claim 4, wherein said step of providing said sacrificial layer and said pads

includes providing cavities in said first surface of said sacrificial layer and said step of depositing said conductive material includes depositing said at least one conductive material into said cavities.

6. (currently amended) ~~The method as claimed in claim 5A~~  
method of making at least one resistor, the method comprising:

providing a sacrificial layer having a first surface and one or more pads including at least one electrically conductive material disposed over at least one region of said first surface;

depositing an electrically resistive material over said pads and over said first surface of said sacrificial layer to thereby form at least one unit including said electrically resistive material and said one or more pads;  
and

removing at least a portion of said sacrificial layer to expose said one or more pads;

wherein said step of providing said sacrificial layer and said pads includes depositing said at least one conductive material onto said first surface of said sacrificial layer;

wherein said step of providing said sacrificial layer and said pads includes providing cavities in said first surface of said sacrificial layer and said step of depositing said conductive material includes depositing said at least one conductive material into said cavities;  
and

wherein said step of providing said cavities in said first surface includes providing an apertured layer on said first surface and etching said first surface through apertures in said apertured layer.

7. (original) The method as claimed in claim 6, wherein said apertured layer is comprised of an etch resistant material.

8. (original) The method as claimed in claim 7 wherein said step of providing an apertured layer includes:

disposing a patternable layer on said first surface of said sacrificial layer; and

patterning said patternable layer to form apertures therein.

9. (original) The method as claimed in claim 8, wherein said patternable layer is comprised of a photoresist.

10. (original) The method as claimed in claim 6, further comprising removing at least a portion of said apertured layer from said first surface of said sacrificial layer.

11. (original) The method as claimed in claim 10, wherein all of said apertured layer is removed from said first surface of said sacrificial layer.

12. (original) The method as claimed in claim 10, wherein only a portion of said patternable layer is removed from said first surface of said sacrificial layer.

13. (currently amended) ~~The method as claimed in claim 5,~~  
A method of making at least one resistor, the method comprising:

providing a sacrificial layer having a first surface and one or more pads including at least one electrically conductive material disposed over at least one region of said first surface;

depositing an electrically resistive material over said pads and over said first surface of said sacrificial layer to thereby form at least one unit including said electrically resistive material and said one or more pads; and

removing at least a portion of said sacrificial layer to expose said one or more pads;

wherein said step of providing said sacrificial layer and said pads includes depositing said at least one

conductive material onto said first surface of said sacrificial layer;

wherein said step of providing said sacrificial layer and said pads includes providing cavities in said first surface of said sacrificial layer and said step of depositing said conductive material includes depositing said at least one conductive material into said cavities; and

wherein said step of depositing said at least one conductive material into said cavities includes depositing a first conductive material into said cavities and then depositing a second conductive material in said cavities of said sacrificial layer.

14. (original) The method as claimed in claim 1, wherein said step of removing at least a portion of the sacrificial layer includes etching the sacrificial layer.

15. (original) The method as claimed in claim 1, wherein each said pad is elongated.

16. (currently amended) ~~The method as claimed in claim 1,~~  
A method of making at least one resistor, the method comprising:

providing a sacrificial layer having a first surface and one or more pads including at least one electrically conductive material disposed over at least one region of said first surface;

depositing an electrically resistive material over said pads and over said first surface of said sacrificial layer to thereby form at least one unit including said electrically resistive material and said one or more pads; and

removing at least a portion of said sacrificial layer to expose said one or more pads;

wherein each said pad includes a post and at least one flange wider than the post portion.

17. (original) The method as claimed in claim 16, wherein each said pad has a rivet-like shape including a pair of flanges at opposite ends of the post.

18. (original) The method as claimed in claim 16 wherein said step of depositing said electrically resistive material is performed so as to embed one flange and at least a part of the post of each said pad in the electrically resistive material while leaving at least part of the other flange of each said pad exposed at a surface of said electrically resistive material.

19. (original) The method as claimed in claim 16, further comprising providing an apertured layer on said first surface of said sacrificial layer before depositing said at least one conductive material, said step of depositing said at least one conductive material including depositing conductive material in the apertures of said apertured layer to form the posts of said pads and depositing conductive material on a surface of said apertured layer remote from said sacrificial layer to form top flanges of said pads, the method further comprising removing at least a portion of said apertured layer from said first surface of said sacrificial layer prior to depositing said resistive material so as to leave the posts and top flanges of said pads projecting from said sacrificial layer.

20. (original) The method as claimed in claim 1 wherein said sacrificial layer includes a dielectric defining said first surface, the method further comprising the step of disposing a seed layer on said first surface of said sacrificial layer, said step of depositing at least one conductive material including the step of plating conductive material onto said seed layer.

21. (original) The method as claimed in claim 20, further comprising the step of at least partially removing said seed layer from each said unit during or after the step of removing said sacrificial layer.

22. (original) The method as claimed in claim 1, further comprising removing excess electrically resistive material from each said unit using a bulk trimming process.

23. (original) The method as claimed in claim 1, further comprising providing a heat sink having a first surface wherein said electrically resistive material forms an electrically resistive layer having a first surface and a second surface, wherein said first surface of said electrically resistive layer is connected to said first surface of said heat sink.

24. (original) The method as claimed in claim 1, further comprising before depositing said electrically resistive material, providing an insulating layer having a first surface and a second surface, wherein said electrically resistive material is deposited between said second surface of said insulating layer and said first surface of said sacrificial layer.

25. (original) The method as claimed in claim 24, wherein a plurality of resistors are manufactured simultaneously using a single sacrificial layer and a common insulating layer, the method further comprising separating at least some of said resistors from one another after removing at least a portion of the sacrificial layer, wherein said separated resistors remain connected to said common insulating layer.

26. (original) The method as claimed in claim 1, further comprising trimming said electrically resistive material in at least one said unit to control electrical resistance of at least one said unit.

27. (original) The method as claimed in claim 1, wherein said step of removing at least a portion of said sacrificial layer includes separating said sacrificial layer from said at least one unit while leaving said sacrificial layer intact.

28. (original) The method as claimed in claim 27 wherein said sacrificial layer is comprised of stainless steel.

29. (currently amended) A method of making at least one resistor, the method comprising:

providing a sacrificial layer having a first surface and a plurality of cavities in the first surface of said sacrificial layer;

depositing one or more conductive materials within said cavities to form conductive pads within said cavities;

disposing an electrically resistive material including electrically conductive particles in a binder over the first surface of the sacrificial layer and the pads to thereby form one or more units; and

removing at least a portion of said sacrificial layer to expose said pads.

30. (currently amended) ~~The method of claim 29A~~ method of making at least one resistor, the method comprising:

providing a sacrificial layer having a first surface and a plurality of cavities in the first surface of said sacrificial layer;

depositing one or more conductive materials within said cavities to form conductive pads within said cavities;

disposing an electrically resistive material over the first surface of the sacrificial layer and the pads to thereby form one or more units; and

removing at least a portion of said sacrificial layer to expose said pads;

wherein said step of depositing one or more conductive materials is performed so as to form said pads as hollow shells within said cavities, and wherein said step of disposing electrically resistive material includes applying said electrically resistive material into said hollow shells.

31. (original) The method as claimed in claim 29, wherein a plurality of resistors are manufactured simultaneously using

the same sacrificial layer, the method further comprising a step of separating at least some of the resistors from one another after at least a portion of the sacrificial layer has been removed.

32. (original) The method as claimed in claim 29, further comprising subdividing one said unit to provide a plurality of individual resistors.

33. (currently amended) ~~The method as claimed in claim 20, further comprising~~ A method of making at least one resistor, the method comprising:

providing a sacrificial layer having a first surface and a plurality of cavities in the first surface of said sacrificial layer;

depositing one or more conductive materials within said cavities to form conductive pads within said cavities;

disposing an electrically resistive material over the first surface of the sacrificial layer and the pads to thereby form one or more units; and

removing at least a portion of said sacrificial layer to expose said pads; and

disposing an apertured layer on said first surface of said sacrificial layer, said step of providing said sacrificial layer including etching said sacrificial layer through said apertures to form said cavities.

34. (original) The method as claimed in claim 33 wherein said step of providing said apertured layer includes disposing a patternable layer on the first surface of said sacrificial layer and patterning said patternable layer to form said apertures.

35. (original) The method as claimed in claim 33, further comprising removing at least a portion of said apertured layer from said first surface of the sacrificial layer before depositing said electrically resistive material.



36. (original) The method as claimed in claim 35, wherein all of said patternable layer is removed from the first surface of the sacrificial layer before depositing said electrically resistive material.

37. (original) The method as claimed in claim 29, further comprising, before depositing said electrically resistive material, providing an insulating layer having a first surface and a second surface, wherein said resistive material is deposited between said second surface of said insulating layer and said first surface of said sacrificial layer.

38. (canceled)

39. (canceled)

40. (canceled)

41. (canceled)

42. (canceled)

43. (canceled)

44. (canceled)

45. (canceled)

46. (canceled)

47. (canceled)

48. (canceled)